THE LUCITE® spectrum

VOLUME 5 • NUMBER 4 • 1967

These booklets are a few of those available from Du Pont intended to make it easier to plan to use, and use properly, LUCITE acrylic plastic in sign, lighting and architectural applications.

The facings booklet is brand new and provides data required to design and install building facings of several different types made from LUCITE.

The other booklets are up-to-date treatments of the use of LUCITE in glazing and lighting applications.

For your free copies just fill out and send in the enclosed postcard.

facings, glazing, lighting

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The purpose of THE LUCITE® SPECTRUM is to provide useful information on building construction products made with Du Pont LUCITE® acrylic plastic materials. This publication will be a medium through which ideas about these materials may be exchanged. Your comments and suggestions are invited. If you desire further information on any product mentioned in this issue, please write to: The Editor, THE LUCITE® SPECTRUM, Du Pont Company, 2420 Nemours Building, Wilmington, Delaware 19898.

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WILMINGTON, DELAWARE 19898

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EDITOR: R. F. WELSH, JR. • ART DIRECTOR: R. L. DOWNES • PRODUCTION SUPERVISOR: J. C. RECORDS

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Please send me a free copy of

☐ Building Facings with LUCITE® (A-57943)

☐ Architectural Glazing with LUCITE® (A-50017)

☐ LUCITE® for Lighting (A-54948)

☐ Please have a manufacturer of acrylic sheet contact me.

Name_____ Title_____

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"Everything but the squeal..."

The Arkansas Louisiana Gas Company, a diversified manufacturing and utility concern, is somewhat like the meat packing company that used every part of the pig but the squeal. When they put energy in, they expect to get useful energy out.

Beautiful new Arkla Plaza in Little Rock, planned on a "total energy" concept, operates completely on gas. In the Total Energy Center, a 500-horsepower natural gas engine runs the generators. Exhaust heat from the gas fired engine is removed by an exhaust heat exchanger and converted to steam, to provide heat in the winter, to make hot water, and in the summer this steam is used in absorption units to produce chilled water for cooling. The generators produce two kinds of electricity: 60 cycle AC current to power machinery such as elevators, the telephone system, and lights in the Board Room; and 420 cycle AC current for almost all other lights.

The fluorescent lamp system operates at 420-cycles with less waste heat. This permits more efficient air conditioning because it doesn't have to fight extra heat from the lighting system.

The ventilating system works through the lighting fixtures, air being delivered or removed through one side of the fixture. Although handling air on only one side, all sides of the 4 x 4 foot, surface-mounted units appear completely uniform. The fixtures are made of extruded aluminum for high rigidity. The exterior is finished in flat black while the interior is a high reflectivity white.

The diffusers for the four foot square fixtures are made of a prismatic pattern acrylic sheet extruded from Du Pont LUCITE® and thermoformed with a slight prestressed arch to gain additional strength without increased thickness. LUCITE was chosen for the 1,186 diffusers because of its high strength and its proven resistance to yellowing.

The lack of data on the 420-cycle system means that little is yet known about the possible increased emission of ultra-violet radiation by fluorescent tubes in this application. Therefore, acrylic was chosen as the transparent plastic most naturally resistant to UV light.

Planned maintenance of the diffusers is a yearly wash with a de-staticizing cleaner. However, this was not found necessary after the first year of operation.

CREDITS: Arkla Plaza— Little Rock, Arkansas, Headquarters of the Arkansas Division of The Arkansas Louisiana Gas Company. Architects— Wittenberg, Delong & Davidson, Little Rock, Arkansas. Structural Engineer—Engineering Consultants, Inc., Hall Building, Little Rock, Arkansas. Mechanical Engineer—Leo Landauer & Associates, 4801 Lemmon Avenue, Dallas, Texas. Electrical Engineer—G. E. Ellefson & Associates, 1200 Summit Street, Little Rock, Arkansas. General Contractor— Pickens & Bond Construction Company, Gazette Building, Little Rock, Arkansas. Lighting Fixtures— Curtis-Electro Lighting, Inc. (Dallas plant), Chicago, Ill. Lighting Diffusers—Electro Plastics Corp., Addison, Texas. Acrylic Plastic extruded from LUCITE®: Southern Plastics Company, Columbia, South Carolina.

THE BEST THINGS IN LIGHT ARE FREE

O'Gorman High School was established in 1960 by the five Catholic parishes of Sioux Falls as a central Catholic high school. It provides separate facilities for boys and girls and is called a co-instructional high school. It has forty classrooms and is designed for use by eleven hundred students.

The Rev. Lambert A. Hoch, D.D., Bishop of Sioux Falls, was head coordinator of the project. One thought was uppermost in the design and planning of the school, and choice of construction materials: everything must of necessity be practical and of modest cost. Many materials were personally inspected and approved, in addition to the recommendations of the local architectural firm of Parezo & Massa.

One of the prime considerations was lighting, and the possibility of using daylight as much as possible was appealing for two reasons: low cost, of course; and the natural color and open feeling of daylight. Skylights by Naturalite, Inc. near Dallas, Texas, formed from acrylic sheet made from LUCITE® seemed to meet the requirements but would they work in Sioux Falls, South Dakota? Sioux Falls is farther north than 85% of the readers of this magazine! It has shorter days during the winter (school) months, colder temperatures and more bitter weather. What's good for Dallas isn't necessarily good for Sioux Falls.

But there was a grade school in Bismarck using skylights made from LUCITE which had withstood temperatures of 100°F. above zero to 30°F. below and weather conditions of rain, sleet, ice, hail and snow.

With this evidence of the durability of LUCITE the skylights were approved. Naturalite engineers surveyed average sky brightness in Sioux Falls, classroom dimensions and furnishings and made their recommendations for the size and number of translucent white acrylic skylights.

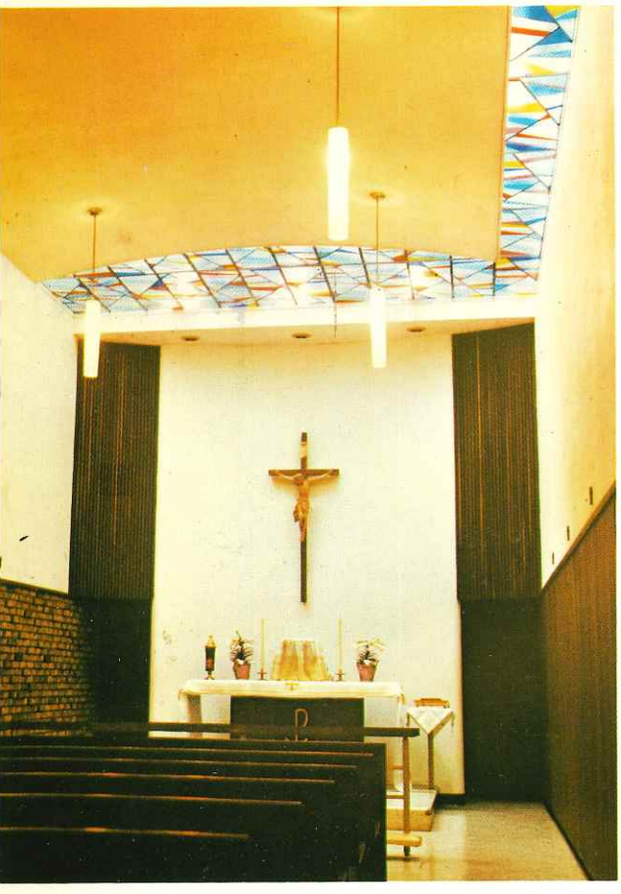
Why translucent white? If you want natural daylight shouldn't skylights be clear? John Kemendo, President of Naturalite, feels very strongly on the subject. "Only in the rarest of cases," he says, "should skylights be clear. You don't want a glaring patch of daylight on the floor or work surface to distract you. And the feeling of daylight or outdoors should be restricted to the quality of the light particularly in the schoolrooms." He's against windows to gaze out of, and believes that the one best place to obtain working daylight is from above, and that it should be diffused to prevent glare. Mr. Kemendo produces tables of meter readings, studies of visual comfort, glare, background brightness, etc., showing that although less light comes in through the translucent sheet, it is more efficient.

Dedicated in October, 1961, experience at O'Gorman High School bears out the recommendations.

The Rev. Howard Carroll, Superintendent of the school, finds that the lobbies and hallways are naturally and evenly lighted throughout the day, all year round. This is true in many classrooms although they sometimes require additional lighting from fluorescent equipment. Even when the two mediums are used together, the light mixing is a delightful blend of natural and artificial light.

The instructing sisters were also eager to praise the skylights of LUCITE. They found them "a helpful and very positive source of good lighting". There is no glare on desks or boards and according to one sister, "most of us use only the skylights as there is no glare and it's much easier on the eyes."

The head custodian reported that not a single skylight has been cracked or broken in the whole building for the six years to date. He has also found maintenance easy; the winters leave some dust accumulation which quickly disappears with the first spring rain. The insides of the skylights in the classrooms are washed annually, however, this has not yet been found necessary on the higher gymnasium skylights.

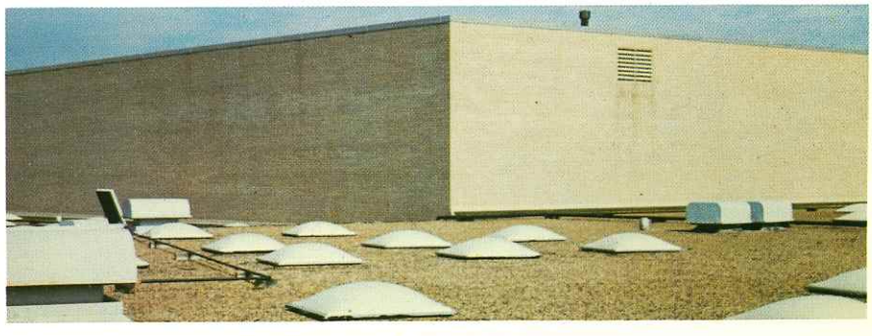


CREDITS: O'Gorman High School—Sioux Falls, South Dakota
Architects—Parezo & Massa • Architects, Sioux Falls,
Skylights—Naturalite, Inc., Garland, Texas.

LEFT: A radiant border of stained glass, 2′ wide at sides and back and 8′ at front transmits light from skylights 5′ above false ceilings in the school chapel.

CENTER: Skylights, readily installed in the single construction roof, are cleaned by rain on outside, washed once yearly inside.

BOTTOM: Even light in classrooms is provided by 6 or 8 skylights depending on size. Small windows at ceiling provide ventilation. Floor to ceiling window providing emergency exit must be shaded to prevent glare.



About face

R. S. Noonan, Inc. of York, Pennsylvania, is a progressive, engineering and contracting firm. Established in 1935 they have enjoyed steady growth which, of course, required more and more space. This is difficult to find in the stable, but busy, community of York. Spread out in three locations, the firm was recently able to obtain an elderly (that's old, but in good condition) building large enough for their needs right in the heart of York with adjacent property for parking, attractive landscaping and future expansion.

Interior renovation was no problem. Since the contractors and engineers were their own clients, they knew the requirements and how to satisfy them. But the

exterior, although still serviceable, looked old . . . not like the home of an aggressive engineering firm. What was needed was a new face.

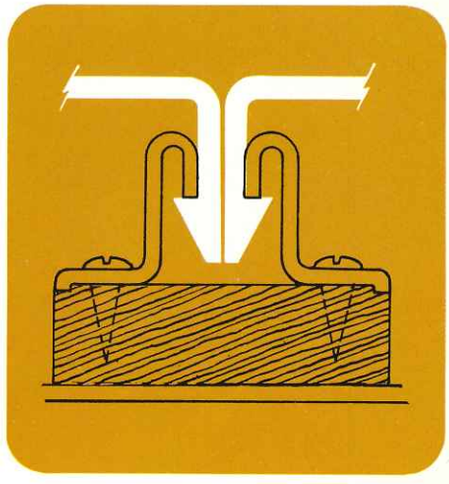
This was no problem for Noonan engineers. They decided on an acrylic face as being good looking, long lasting, easy to install and offering the widest variety of colors and designs and contacted McClarin Plastics in nearby Hanover.

"They knew exactly what they wanted", recalls Joe Frantz, McClarin Sales Manager. "They had picked white with blue to accent the entrance section of the building and had specified a pebble finish to reduce glare. There were about seven sizes of formed panels, but we were able to cut down the plywood molds between sizes with little expense."

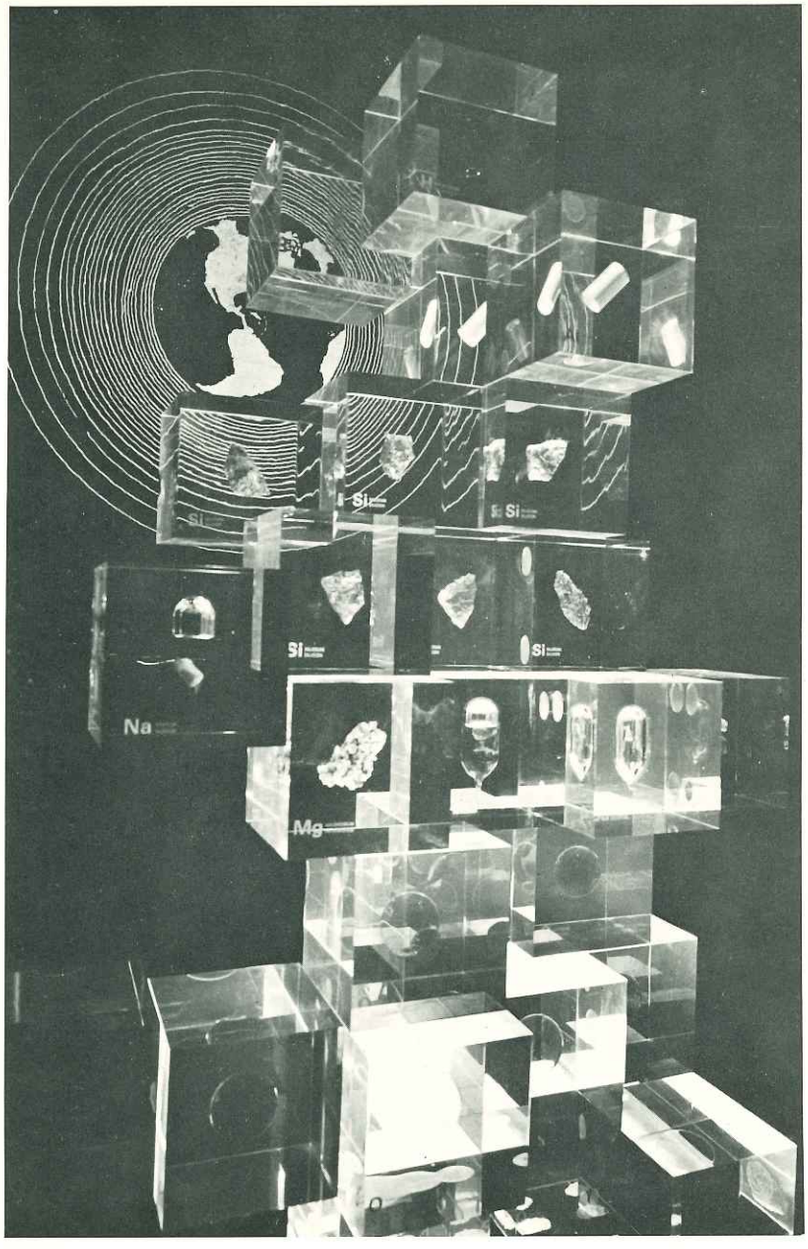
The white and blue panels with a pebble finish were made from LUCITE® acrylic monomer by Cast Optics Corporation, formed by McClarin Plastics and delivered to the job site ready to install. One of Noonan's own crews readied the building for installation using a clip system obtained from Arrem Plastics, Inc., Addison, Illinois. Wooden stringers were attached to the face of the old building and the clips screwed in place on these strips. Clips were spaced 12 inches from the corner of each panel and extra clips placed in between to maintain a maximum spacing of 24 inches. When the formed panels were delivered to the site, they had only to be snapped into place.

CREDITS: The Noonan Building, York, Pennsylvania. The R. S. Noonan, Inc. & Noonan Engineering Corp. Facing panels formed by McClarin Plastics, Inc., Hanover, Pennsylvania. Cast acrylic sheet supplied by Cast Optics Corp., Hackensack, New Jersey.

A new booklet "Building Facings with LUCITE®" is available at no charge. Just use the postcard in the front of this book.



LEFT: A plywood mold is used in the press to form the heated acrylic sheet. CENTER: Formed panel shows the pebble finish intact after thermoforming. RIGHT: Finished panels are snapped into metal clips which are fastened with screws to furring strips.



BONJOUR EXPO

The recently closed Expo '67 in Montreal was a great exposition. Bright, sparkling, fast-moving and well worthwhile—even after waiting in line. The reason seemed to be the fresh creative thinking that was shown in the concept, the construction of the pavilions and the presentation techniques.

Not the least of the attractions were the Canadian Theme Pavilions which added much in developing a coherence of planning.

Acrylic plastics used in many places throughout Expo, were used to great advantage here in "Man the Producer" theme pavilion. More than 30,000 pounds of LUCITE® acrylic plastic was used.

In the "Resources of Man" section of this pavilion, films were projected through walls of LUCITE made up of 6″ cubes and 6″ x 6″ x 5″ blocks. The blocks fragmented the picture creating a kaleidoscopic effect of ever changing colors and form which proved impossible to photograph.

The central figure of the "Resources of Man" exhibit also exploits the optical clarity of LUCITE. Each of the 103 elements which make up man's resources has been embedded in a six-inch cube of LUCITE, and these highly polished cubes have been cemented together in various arrangements and mounted so that the elements can be easily viewed from all angles. The embedments are lit from above by spotlights and from below by lights within the stands on which the blocks are mounted. The rest of the room is in darkness.

The "Resources of Man" area was conceived and executed by Woods & Ramirez of New York City.

Both the projection screens and the embedments were cast from LUCITE and assembled by Unique Art Inc., St. Martin, Beauce County, Quebec, a firm specialized in high-quality acrylic casting.

COVER: Arkla Plaza in Little Rock, Arkansas, uses gas for heating, cooling and generating power for electrical motors and equipment and for light which, of course, is directed by lenses made of LUCITE®. See "Everything but the Squeal" on Page 4.

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A-58334

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